

REMARKS

Entry of the foregoing, reexamination and further and favorable reconsideration of the subject application in light of the following remarks, pursuant to and consistent with 37 C.F.R. § 1.112, are respectfully requested.

The Office Action Summary correctly indicates that claims 1-3, 8, 15-17, 22, 24, and 26-27 are pending in the application and stand rejected.

Claims 1, 15 and 24 have been amended to more clearly describe the claimed subject matter by reciting that altering fiber length development means increased fiber length, to delete the phrase “or fiber enhanced” and to amend the word “fibre” to the more American spelling “fiber.” Support for the amendments can be found in the specification in at least page 31, lines 18-19.

No prohibited new matter has been introduced by way of the above amendments. Applicants reserve the right to file a continuation or divisional application on any subject matter that may have been canceled by way of this amendment.

Rejections under 35 U.S.C. § 112

Claims 1-3, 15-17, 22, 24, and 26-27 stand rejected under 35 U.S.C. § 112 as allegedly containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the invention at the time the application was filed. The rejection is respectfully traversed.

The Examiner has alleged that the claims encompass “some unspecified feature of property of fiber length development” Without acceding to any implied basis for rejection in the Examiner’s allegation, the claims have been amended to clearly indicate that the method

results in cotton plants and cotton fibers with an increased fiber length as compared to plants which do not have a chimeric gene as cited in the claims.

The Examiner has alleged that Applicants do not describe a fiber specific or fiber-enhanced promoter, a primary cell wall promoter, or a secondary cell wall promoter. The Examiner's attention is directed to page 21 (lines 5-7) of the US application as filed where reference is made to the teachings of WO9818949 and WO9800549 related to fiber specific promoters and plant primary and secondary cell wall specific promoters.

Indeed, WO9818949 discloses promoter sequences of cotton fiber promoters (see for example on page 7, lines 14-16, lines 29-30, example 6 and figure 8) which are highly active in fibers. Consequently said promoters were known in the art and could be used to direct the transcription of a gene of interest, such as SuSy, in cotton fiber. In addition, WO9818949 refers on page 4 (lines 22-24) to other cotton fiber-specific promoters as further disclosed in WO9412014, WO9508914 and *Proc. Natl. Acad. Sci. USA*, 89: 5769-5773, 1992.

WO9800549 discloses plant cellulose synthase genes (and promoters) which are associated with the primary and secondary cell wall of a plant cell (see page 4, lines 1-5; page 8, lines 11-21). It is stated that the use of said genes can be used to modify the properties of plant cell walls or cotton fibers (page 17, lines 20-22), the latter implicates that primary and secondary cell wall promoters were also known use at the time of Applicants' invention.

Thus Applicants submit that from the above that fiber specific, primary and secondary cell wall promoters were known in the art. It is clear that Applicants referred to a representative number of nucleotide sequences of fiber-specific and plant primary and secondary cell wall promoters, falling within the scope of the genus of fiber-specific and plant primary and secondary cell wall promoters. See, e.g. *University of California v. Eli Lilly and Co.*, 119 F.3d 1559; 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). Applicants further submit

that a patent need not provide specific promoter DNA sequences to adequately describe a claim generically reciting such promoter sequences where the patent was describing promoters already known in the art. See, e.g., *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 79 USPQ2d 1813 (Fed. Cir. 2006). The specification need not disclose what is well-known to those skilled in the art and preferably omits that which is well-known to those skilled and already available to the public. *In re Buchner*, 929 F. 2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991).

Applicants therefore respectfully believe that the written description objection is rendered moot.

Rejections under 35 U.S.C. § 103

Claims 1-3, 8, 15-17, 22, 24 and 26-27 stand rejected under 35 U.S.C. § 103 as allegedly unpatentable over U.S. Patent No. 6,080,914 (Conner) in view of Runa et al. Plant Physiology, 115:375-85, and Applicant's specification.

The prior art fails to establish a proper prima facie case of obviousness. To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. M.P.E.P. § 2143.

The prior art does not teach each of the elements of the claimed invention. Furthermore, the prior art could not have motivated one to combine the references as

proposed by the Examiner, because the prior art did not teach or suggest that the claimed combination could be used to increase fiber length.

It is impermissible to first ascertain factually what applicants did and then view the prior art in such a manner as to select from the random facts of that art only those which may be modified and then utilized to reconstruct applicant's invention from such prior art. *See, e.g., Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 550 (Fed. Cir. 1985); *see also, In re Shuman*, 150 U.S.P.Q. 54, 57 (C.C.P.A 1966). Thus, it is impermissible to consider the discovery of the present inventors that SuSy can be used to increase fiber length as motivation for the proposed combination when the prior art did not suggest any reason that would lead to one to make the presently claimed invention.

Ruan *et al* teach that SuSy has a function in cotton fiber development as far as cellulose biosynthesis is concerned. However, Applicants reiterate that there is, in fact, no correlation between the fiber length and cellulose biosynthesis. The apparent reason that the rejection has been is given by the Examiner in stating "the claims do not recite what feature of cotton fiber length development or fiber has been altered." OFFICE ACTION dated January 4, 2008, at ¶¶ bridging pages 4-5. The amended claims now specifically recite a method to 'increase fiber length' instead of referring to 'altering fiber length development'. Conner and Ruan *et al.*, taken with the prior art, does not teach or suggest the claimed method. An analysis of obviousness of a claimed combination must include consideration of the results achieved by that combination. *The Gillette Co. v. S.C. Johnson & Son Inc.*, 16 USPQ2d 1923, 1928 (Fed. Cir. 1990). Critical to the analysis is an understanding of the particular results achieved by the new combination. *Id.* (citing *Interconnect Planning Corporation v. Feil*, 227 U.S.P.Q. 543, 551 (Fed. Cir 1985)).

The Examiner has asserted that the record shows that a correlation between fiber development and SuSy activity. OFFICE ACTION dated January 4, 2008, at 5. Applicants note that cotton fibers undergo four developmental stages: fiber cell initiation, elongation, secondary wall synthesis, and maturation. Ruan *et al* indicate that SuSy is essential for cellulose biosynthesis in developing cotton fibers and indeed figure 5 shows a positive correlation between fiber development and SuSy activity. According to Ruan *et al*, the SuSy protein levels are highly correlated with the profile of secondary cell wall cellulose biosynthesis (as is shown in figure 5, page 381). However, Ruan does not teach or suggest that there is a correlation between SuSy expression and cotton fiber length.

Furthermore, since it is known that the elongation phase of the cotton fiber precedes the secondary cell wall synthesis in cotton fibers there would not have been any incentive for the skilled person in Ruan *et al* to use SuSy for enhancing the fiber length of cotton. Accordingly, one of ordinary skill in the art would not have combined the teachings of Ruan *et al* with the fruit-specific receptacle promoters disclosed in the Connor patent, and neither would there have been a reasonable expectation of success for a skilled person to combine the Ruan *et al* disclosure with the known constitutive promoters as cited in the Applicants' application.

The Connor patent discloses: 1) strawberry derived fruit-specific receptacle promoters useful for sink-specific expression (i.e. to develop fruit with higher carbohydrate composition or higher sink composition), 2) a possibility for using said promoters to express sucrose-synthase in several plants amongst which also mentioned in cotton balls or seed. The Connor patent is completely silent (and there is no suggestion) about the possibility of using sucrose synthase to increase cotton fiber length. A skilled person confronted with the problem of how to enhance the cotton fiber length would therefore not have used nor modified the teachings

of the Conner patent by expressing the sucrose synthase in combination with for example known promoters (as disclosed in the Applicants application) with the aim to obtain longer cotton fibers or would not have combined Connor in combination with the teachings of the Ruan reference (see arguments supra).

For at least the foregoing reasons, withdrawal of the rejection is respectfully requested.

CONCLUSION

In view of the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order. Such action is earnestly solicited.

In the event that there are any questions relating to this application, it would be appreciated if the Examiner would telephone the undersigned concerning such questions so that prosecution of this application may be expedited.

The Director is hereby authorized to charge any appropriate fees that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800.

Respectfully submitted,

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